

evaluating the fitness as the optimal solution of each of the putatively corrected child chromosomes prior to updating a chromosome pool for use in the successive generation.

Claim 2 (original): The method of claim 1, wherein the undesirable gene combinations are identified based on a priori knowledge of constraints on the optimization problem.

Claim 3 (original): The method of claim 1, wherein the undesirable gene combinations are identified by use of a statistical technique.

Claim 4 (original): The method of claim 3, wherein the statistical technique comprises training a neural network on at least one gene subset within the child chromosomes.

Claim 5 (original): The method of claim 1, wherein the undesirable gene combinations are identified based on a combination of a priori knowledge of constraints on the optimization problem and the use of a statistical technique.

Claim 6 (original): The method of claim 1, wherein altering the undesirable gene combinations to produce a set of putatively corrected child chromosomes comprises deterministically altering at least one undesirable gene combination based on a priori knowledge of constraints on the optimization problem.

Claim 7 (original): The method of claim 1, wherein altering the undesirable gene combinations to produce a set of putatively corrected child chromosomes comprises randomly altering at least one undesirable gene combination.

Claim 8 (original): The method of claim 1, wherein altering the undesirable gene combinations to produce a set of putatively corrected child chromosomes comprises altering at least one undesirable gene combination in accordance with a greedy optimization.

Claim 9 (original): The method of claim 1, wherein the optimization problem comprises optimizing at least one characteristic of an integrated circuit.

Claims 10-18 (canceled)

Claim 19 (original): A system programmed to perform the following method:

generating, during each of a series of generations of a computer-implemented process based on a genetic model for solving an optimization problem, a set of child chromosomes, each child chromosome comprising at least one gene;

examining the child chromosomes for undesirable gene combinations;

altering the undesirable gene combinations to produce a set of putatively corrected child chromosomes; and

evaluating the fitness as a solution to the optimization problem of each of the putatively corrected child chromosomes prior to updating a chromosome pool for use in the successive generation.

Claim 20 (original): The system of claim 19, wherein the system comprises a plurality of networked processing nodes.

Claims 21-22 (canceled)

Claim 23 (original): A system for searching for an optimal solution to an optimization problem using a computer-implemented process based on a genetic model, comprising:

means for generating, during each of a series of generations of the computer-implemented process, a set of child chromosomes, each child chromosome comprising at least one gene;

means for examining the child chromosomes for undesirable gene combinations;

means for altering the undesirable gene combinations to produce a set of putatively corrected child chromosomes; and

means for evaluating the fitness as the optimal solution of each of the putatively corrected child chromosomes prior to updating a chromosome pool for use in the successive generation.

Claim 24 (original): A computer-readable storage medium containing program code to solve an optimization problem according to a process based on a genetic paradigm, comprising:

a first code segment configured to generate, during each of a series of generations of the process, a set of child chromosomes, each child chromosome comprising at least one gene;

a second code segment configured to examine the child chromosomes for undesirable gene combinations;

a third code segment configured to alter the undesirable gene combinations to produce a set of putatively corrected child chromosomes; and

a fourth code segment configured to evaluate the fitness as a solution to the optimization problem of each of the putatively corrected child chromosomes prior to updating a chromosome pool for use in the successive generation.